

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 9458WO/CF	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE 2003/001221	International filing date (<i>day/month/year</i>) 16.07.2003	Priority date (<i>day/month/year</i>) 26.08.2002
International Patent Classification (IPC) or national classification and IPC B65G 47/48, G06F 19/00		
Applicant ABB AB et al.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
 - a. ☐ (*sent to the applicant and to the International Bureau*) a total of _____ sheets, as follows:

☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - b. ☐ (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input type="checkbox"/> Box No. II	Priority
<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application

Date of submission of the demand 22.03.2004	Date of completion of this report 10.12.2004
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Form PCT/IPEA/409 (cover sheet) (January 2004)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE 2003/001221

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ the drawings:
- pages _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing *(specify)*: _____
- ☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing *(specify)*: _____
- ☐ any table(s) related to the sequence listing *(specify)*: _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE 2003/001221

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-2</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-2</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-2</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The invention relates to a system for selection and transport of an object out of a plurality of objects in an operation area. It comprises a system for detection of objects present in the operation area and an industrial robot including a manipulator and an operating system having a computer memory for storing information on the objects present in the operation area. The invention also relates to a method of selecting an object out of a plurality of objects in an operation area for transport to a predetermined location. In other words, a system and a method including an industrial robot and a vision system for extracting an object out of a plurality of objects in a continuous production flow and the object is to devise a system to find a solution to select an object from a plurality of objects present in an operation area for transport to a predefined position and a method to select an object in a flow of continuous products for transport in a direction at an angle to the direction of product flow.

According to the invention, the system comprises:

means for defining a transport direction of each object in the operation area;

means for defining a passageway along the transport direction of each of said object;

and means for calculating the presence of other objects penetrating into each of said passageways.

According to the invention, the selecting step of the method comprises:

defining a transport direction for each of the objects present in the operation area;

defining a passageway along the transport direction of each of said objects;

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

calculating for each passageway the presence of penetration of any other of said present objects;
selecting an object which passageway is free from penetration.

As a result, the objects can be extracted from the flow without touching surrounding objects; the objects can be shuffled sideways without any risk of bumping into other objects in the production flow and the production cycle performance can be optimized by choosing products with shortest displacements.

In the International Search Report, document

D1 JP 62218314 A

was cited as a category X document.

However, from D1 a multi-directional sorting device is known for precisely sorting a large number of goods. A computer delivers a control signal to a conveyer drive motor, so that goods are conveyed from a take-in conveyer to modules. The sorting device in D1 does not comprise any industrial robot.

Therefore, D1 only represents the general state of the art. The invention defined in claims 1-2 is not disclosed by this document.

The cited prior art does not give any indication that would lead a person skilled in the art to the claimed system and method. Therefore, the claimed invention is not obvious to a person skilled in the art.

Accordingly, the invention defined in claims 1-2 is novel and is considered to involve an inventive step. The invention is industrially applicable.